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ABSTRACT

Methodologies and trends of judicial behavior research (the study of how and why court judges make decisions) are traced from the 1920s to the present. Arranged into five sections, the first two sections of the report identify principal points of social science research in general. A summary of methodology in judicial behavior research reveals that the majority of researchers use judges' decisions as their primary data source; however, this source is being increasingly supplemented by comparative analyses of judges from American and non-American systems. The third section reviews research during the "pioneer days" from the 1920s to the publication of Schubert's "The Judicial Mind" in 1965. The introduction of factor analysis, multiple regression, bloc, and scalogram analyses are noted as the most significant statistical developments of the period. The fourth section traces methodology from "The Judical Mind" to the present. The psychometric model, comparative analyses, enhancement of methodological foundations, expansion of survey research, content analysis, and longitudinal studies are characteristic of this period. The last section assesses the state of the art and suggests that comparative studies and experimental designs will increase and more effective use of known statistical methods will occur. (KC)

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THE DEVELOPMENT OF THE METHODOLOGY OF JUDICIAL BEHAVIOR RESEARCH: A HISTORICAL REVIEW AND CRITIQUE OF THE USE AND TEACHING OF METHODS

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THE DEVELOPMENT OF THE METHODOLOGY OF JUDICIAL BEHAVIOR RESEARCH: A HISTORICAL REVIEW AND CRITIQUE OF THE USE AND TEACHING OF METHODS

I. Introduction: The Meanings of Methodology and Judicial Behavior

It is necessary to begin by identifying the principal subjects to be discussed: methodology and judicial behavior. The two terms can be subject to so many interpretations as to make a discussion of their conjunction in political research unmanageable.

Methodology

Casual social scientific use of the term methodology is likely to equate it with the use of a statistical method, or even more narrowly, with the application of statistical measures to quantified data. But methodology is a broader subject, indeed one which cannot be easily separated from "theory building." For the purpose of separating theory from methodology, the latter will here be considered to encompass five components: research design and comparative method, data generation procedures, operationalization and measurement of concepts, statistical methods (techniques), and statistical measures.

Judicial Behavior

"Judicial behavior is part of the broader approach in political science that has come to be called behavioralism. . . . [W]hat distinguishes judicial behavior from behavioralism generally is its specific focus upon the decision making of judges" (Schubert, 1968: 307). Alternatively, the "judicial behavior approach represents the fusion of theories and methods developed in the various social sciences. . . in order to study scientifically how and why judges make the decisions they do" (Schubert, 1964: 3). These definitions from the scholar who most deserves to be called the father of judicial behavioralism delimit the focus of this article. Nevertheless, the term "judicial decision making" will not be interpreted especially narrowly. The formally rendered judicial decision represents the end of the judicial decision making process. The beginning of that process occurs when the judges are recruited to office, and there is a variety of intervening processes which shape that formal decision.

To make the concentration of this article clear, it may be worthwhile to indicate what sort of "judicial" studies are not included within its purview. The first excluded category is

traditional doctrinal analysis, which does not fall within the boundaries of Schubert's definition of judicial behavior. Also excluded are studies of the impact or policy consequences of judicial decisions, however important these may be. Finally, studies which focus on the behavior of actors related to the judicial process who are not judges -- litigating interest groups, executives who appoint judges, electorates who elect them, elite and mass publics who evaluate their decision making -- are excluded. All these kinds of studies may be important to one who wishes a full understanding of the judicial process, but none focuses on the decision making which is at the heart of judicial behavior.

II. Aspects of Methodology

Research Design and Comparative Method

The modal research design of judicial behavior analyses is post hoc and implicit, i.e., an artifact of available or chosen data generation procedures or even of knowledge or choice of a statistical method or measure. Thus it will not be fruitful to present a full discussion of research design in the sense in which that term has come to be used as a result of the irfluence of Donald Campbell and his associates (see Campbell and Stanley, 1963 and the discussion in Leege and Francis, 1974, Ch. 3 and the references cited therein). In discussing research design, then, I shall (following Lijphart, 1971) focus on whether a study employs a "comparative," or "case study" method, instead of or in supplement to the standard "statistical" method, realizing that there are, so far, no examples of true "experimental" judicial behavior studies . Special attention will be given to studies which compare two or more occurences of the phenomenon under investigation, either explicitly or by following the example of or incorporating direct references to the findings of studies on other occurences of the phenomenon. The reason for this is simple: only by increasing the scope of the generalizations drawn from judicial behavior research will middle and broad range theories of judicial behavior be achieved. Attention will be given to whether designs are cross-sectional or longtitudinal, and how the design might have been improved.

The "unit of analysis," another important topic in research design, will be a matter of minimal discussion here because the definition of judicial behavior to be used will limit analytical attention to studies either employing individual judges as units of analysis or, in a few cases, judicial decisions as units allowing generalizations about the behavior of individual judges.

Data Sources and Data Generation Procedures

The modal judicial behavior study uses data drawn from

official records such as court reports or quasi-official sources such as the reference series published by law publishers. This category of data is complex -- it incorporates a variety of types of information -- and rarely self-representing in any meaningful sense: it almost always requires considerable "coding" (of votes, outcomes, policy or legal issues, etc.) by a sophisticated investigator before it is useful for research on judicial behavior. To conduct the required coding, the investigator ordinarily must engage in some kind of content analysis, even if relatively superficially. More intensive content analyses of official and unofficial documents have been relatively rare, but of substantial importance in the development of theory in some areas of judicial behavior. Judicial behavior research has also been based on data generated by the other common methods of social science data generation, including survey research using mail questionnaires or personal interviews, field observation, and, rarely, human or computer simulation. Although much discussed by some legal scholars and judicial behavioralists, clinical examinations -- psychological and/or physiological -- have as yet been used even more rarely to produce data relevant to explaining judicial behavior.

Operationalization and Measurement

Operationalization and measurement of the concepts from which theories are built have received less attention in judicial behavior research than they have deserved. Unavoidable weaknesses in available data may have led some analysts to conclude that little could be done to reduce the error variance which impeded the verification of plausible hypotheses. The "mechanical" application of statistical methods made possible, if not defensible, by "user-friendly" modern computer programs may have diverted the attention of others from that beginning adage of computer analysis: "garbage in, garbage out." And, since operationalization and measurement is not likely to be of much concern in the absence of a theory which imbeds concepts requiring operationalization and measurement, it is also certain that inadequate theorizing has led to weak operationalization and measurement.

Good measurement is hard work. Establishing the reliability and validity of indicators can be more difficult than conducting the test of the hypotheses the indicators have been contructed to operationalize. Thus I would not wish to endorse a "purist" position which rejected any analysis using measures whose reliability and/or validity could not be unequivocally demonstrated. In many cases, face validity will have to suffice and resources will prevent full investigation of the reliability of the indicators employed. But it will be helpful in reviewing judicial behavior research to assess the extent to which measurement practices have affected potential substantive conclusions. Special attention will be paid to the use of multiple indicators, the construction of scales and indices which, in principle, allow more robust measurement of a concept, and to the consideration of

the possible interactions between variables which might have a significant statistical impact and an appealing theoretical interpretation.

Statistical Methods

I distinguish between "statistical methods" ("techniques") and "statistical measures." This is less arbitrary than it might at first appear. Statistical methods are the broad approaches to the presentation and analysis of data which have been developed to help answer important classes of questions one asks as an investigator. Answering these questions is crucial to determining whether and to what extent research hypotheses are verified. Using the wrong method will make it difficult, if not impossible, to determine the fates of one's hypotheses. Using the wrong measure is less likely to occur if one is using the right method, but is also less likely to mislead the analyst as to the fate of his/her hypotheses if it does occur. The family of statistical methods includes univariate analysis of central tendency, dispersion, and distribution, classical contingency table analyses using some variation of Lazarsfeld's "elaboration model" (see Rosenberg, 1968), analysis of variance, linear and nonlinear regression analysis (simple and multiple), factor analysis, uni- and multi-dimensional scaling, causal modelling including path analysis (recursive and nonrecursive), time series analysis (including ARIMA modelling of interrupted time series) and a host of, in my view, ordinarily less useful techniques generally derived from one or more of the preceeding, including "tree" or AID analysis and its analogues for categorical dependent variables such as THAID, discriminant function analysis, canonical correlation, bloc and cluster analysis, and log linear modelling and related methods for the analysis of categorical variables in contingency tables.

Statistical Measures

Statistical measures are the specific coefficients calculated in the process of employing statistical methods. They are classically divided into descriptive and inferential measures, but beyond univariate measurement, they can be more meaningfully classified as measures of association and measures of statistical significance. The former are far more important than the latter for theory building, for they tell an investigator how strong is (are) the relationship(s) depicted by his/her hypotheses. Examples of measures of association include lambda, phi, gamma, and the family of Kendall's and Goodman and Kruskal's taus for contingency tables, the simple and multiple correlation coefficients and their squares (r, r^2, R, R^2), and the unstandardized and standardized regression coefficients (b's or betas and "beta weights"). Measures of significance cannot be dispensed with, however, since they tell an investigator the probability that a relationship as strong as that discovered could have occured by chance, thereby establishing a "level of

confidence" for the relationship. Examples of measures of significance include Chi Square, Fisher's Exact Test, the Mann-Whitney U test, and the z, t, and F coefficients. Judicial behavior scholars have not always used the most appropriate statistical measures for the data and statistical methods characterizing their studies.

A Summary Assessment of Methodology in Judicial Behavior Research

Recent work by Hensley with his students (1981a, 1981b) has provided a useful summary of a large and probably representative body of judicial research across the decades of the 1960's and 1970's. They content analyzed every article dealing with courts, judges, and the judicial process which appeared in four major political science journals from 1961-1980 and reported summary data usually arrayed over time for such study characteristics as data base(s), quantification, statistical techniques, court(s) studied, substantive focus, and theoretical framework used. These data illustrate the general patterns of development of many aspects of methodology in judicial behavior research.

Hensley's data reveal a steady increase in the use of quantification in judicial articles across the period 1961-1980. For the whole period, 58% of the 223 articles published in the surveyed journals used at least minimal quantification (defined by the presence of one or more numerical tables). The quantitative proportion rose at first sharply then more gradually from 36% in 1961-1965, the period of the firm establishment of the judicial behavior approach, to 72% in 1976-1980. While not all these quantitative articles would qualify as judicial behavior studies, it is apparent from a review of their titles that a large portion would, and it is also likely that those which would not would differ only marginally from the judicial behavior articles. Thus Hensley's discussion of the quantified articles in his sample should provide a reasonably accurate assessment of the development of judicial behavior research.

Data Sources

Hensley's marginals for the data sources used by the quantitative studies in his sample give an overall picture of the data sources of judicial behavior research for the last two decades:

Data Source Used	% Using
Judges Decisions (votes, sentences, opinions)	65%
Case information from court documents other than judges decisions	11

Background information on judges from non-survey sources	22
Mail survey of judges	3
Personal interview survey of judges	7
Survey research of non-judges	11
Demographic data	12
Other sources	28

These data clearly show the domination of judicial behavior research from 1961-1980 by that most traditional of public law data sources, judges decisions. This domination is even more impressive if one realizes that studies using survey data from non-judges and demographic data are not very likely to be judicial behavior studies, as that term is defined here.

Hensley also provides a cross-tabulation of these data sources over time. That display (his Table 5) shows very little variance in the proportion of the quantitative studies using judicial decisions as a data source, although the 1961-1965 period percentage is higher than the rest at 85% of the 20 articles published in that period. The most consistent and substantial increases occur in the personal interviews of judges and "other" categories. By 1976-1980, personal interviews of judges were used in 10% of the studies while other source of data were used in 46%. Certainly these trends are signs that the variety of data sources used in judicial behavior research has increased, despite the continued importance of the staple data source, judicial decisions, votes, and opinions.

Statistical Methods and Measures

For specific quantitative methods used, Hensley reports the following overall results for the 130 quantitative articles:

Method/Measure Used	% Using
Univariate/bivariate descriptive statistics at nominal/ordinal level	88%
Univariate/bivariate inductive statistics at nominal/ordinal level	35
Univariate/bivariate descriptive statistics at interval level	35
Univariate/bivariate inductive statistics at interval level	15

Multivariate descriptive statistics at nominal/ordinal level	9
Multivariate inductive statistics at nominal/ordinal level	6
Multivariate descriptive statistics at interval level	26
Multivariate inductive statistics at interval level	15
Bloc Voting Analysis	9
Scalogram Analysis	19

It is unfortunate that Hensley's coding scheme did not differentiate between the use of univariate and bivariate methods, since the use of the latter implies the existence of the relational analysis necessary to hypothesis testing and explanatory research. But even without this distinction, his data might be taken to indicate that the level of statistical sophistication of judicial behavior research has not been not very great, given the percentages for the use of various types of multivariate methods. An over time breakdown for the use of multivariate methods shows that for the first fifteen years of Hensley's journal survey, there was no trend toward any increase in their use: only in the 1976-1980 period did the percentage of quantitative articles using multivariate methods increase from just over 20% to 46%. For the twenty year period, the proportion using any multivariate method was only 31%.

The use of bloc analysis and cumulative scaling, two classic methods of dimensional analysis in judicial behavior research, declined over the twenty years surveyed. For the former, the decline was from 15% in the 1960's studies to only 4% in studies published from 1976-1980. For scalogram analysis, the decline although uneven, was from 35% in 1961-65 to 12% in 1976-1980. These declines could mean that the methodological sophistication developed by the pioneers of judicial behavior has disappeared in the work of their successors. Somewhat more optimistically, it may mean that these classic techniques were superseded by more powerful multivariate methods, at least in the last half of the 1970's. My impression is that it also reflects a broadening of the substantive focus of judicial behavior research to areas in which bloc and scalogram analysis are less appropriate.

Research Design

The fact that Hensley's studies did not specifically include a classification for study research design is almost certainly not the fault of the researcher, but is an indication of the lack of explicit attention received by this topic in judicial behavior research. In the absence of systematic data on study designs, an

impressionistic assessment of research design patterns in judicial behavior research (supplemental to that given above) will have to suffice.

It appears that relatively few judicial behavior studies should be classified as "case studies," at least in the sense in which this term is used by Campbell and Stanley (i.e., "the one shot case study"). Judicial behavior scholars have recognized the limitations of the case study: after all, the judicial behavior movement represented a revolt against the case study method as used in traditional public law. On the other hand, there have been instances of what Lijphart (1971: 691-92) calls "hypothesis generating, theory confirming, theory infirming, and deviant case studies," which he argues may have great value for the development of political theory. Outstanding examples would be Danelski's (1964) detailed analysis of the appointment of Pierce Butler to the U.S. Supreme Court, and Schubert's (1965a) analysis of the values of Justice Jackson. Parenthetically, the latter is an excellent indication that case studies need not be quantitatively unsophisticated.

At the other end of Lijphart's methodological continuum, the central focus of judicial behavior research on judicial decision making has apparently precluded any experimental research. Instead, the method of choice (necessity?) has been "statistical," supplemented increasingly by the introduction of the "comparative" method as data on a greater variety of corps of judges from different American and non-American political systems.

As coded, Hensley's data do not allow a definite determination of the extent to which judicial behavior studies have introduced some version of the comparative method into their analyses. Nevertheless, his coding of the "courts studied" details some categories which are prima facie "comparative." Thus Hensley reports that 16 studies dealt with more than one level of the federal courts and 3 with more than one state court level, 11 dealt with both federal and state courts, 9 dealt with non-American courts, and 2 with international courts. This means that 41 (42%) of the 97 studies (69 of which were quantitative) which did not deal only with the U.S. Supreme Court can be verified to have had at least an implicit comparative focus. It is clear that many of the other 55 studies in this category also dealt with multiple courts, even though Hensley's coding does not allow one to calculate how many. Outside the study of the U.S. Supreme Court, the use of the "comparative method," often in conjunction with the "statistical method," has been more significant than one might have expected. Hensley's data also suggest that comparative designs became more frequent over the two decades surveyed.

Hensley found 61 quantitative studies of the U.S. Supreme Court only. Although his paper does not present any breakdown to indicate the extent to which these studies are cross-sectional or at least partially longitudinal in their designs, it is clear

that many of the 61 articles present cross sectional analyses of the behavior of Supreme Court justices at more than one point in time. To the extent that this is true, even these studies have some comparative component.

More generally, most judicial behavior research has been cross-sectional or, at best, has analyzed successive cross-sections at multiple points in time. Traditional "time series" studies, which analyze the behavior of a single unit of analysis over time have been more characteristic of judicial studies using the court, rather than judges, as a unit of analysis. Nevertheless, recent work by Ulmer (1979a, 1979b, 1973a) exemplifies true longitudinal research using individual justices as units of Analysis.

Operationalization and Measurement

Except to the extent that it details the use of bloc analysis, which has been used to operationalize conflict and consensus in judicial decision making, and cumulative scaling, which has been used to operationalize judicial attitudes and values, Hensley's research has little to say about patterns of operationalization and measurement in judicial behavior research. In a preceeding paragraph, I indicated that insufficient attention had been given to these matters in most judicial behavior research. Yet in its use of and cluster analysis, "power indexes," and a number of ad hoc measures, judicial behavior research has devoted substantial attention to operationalization in some areas of inquiry. It is not accidental that the most satisfactory theoretical work has been produced in the areas in which operationalization and measurement have been taken most seriously.

III. Beginnings: Methodology in the Pioneering Studies of Judicial Behavior

I would date the "pioneer days" of judicial behavior research as lasting until the publication of Schubert's The Judicial Mind in 1965. From the 1920's until its publication, there had been first isolated attempts to deal with the decision making of judges through the use of systematic quantitative data, then agressively self-conscious efforts to begin the integration of the study of public law into the behavioral movement and to battle the bastions of traditionalism. Efforts to develop appropriate methodologies for judicial behavior research had made great progress.

The Judicial Mind marked the end of the pioneering and the beginning of the modern era because it represented the first full scale, completely behavioral, methodologically sophisticated effort to develop a theory of judicial decision making in the world's most celebrated court. It represented a culmination for

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the efforts of such important judicial behavior pioneers as Mott et al., Gaudet, Pritchett, Thurstone and Degan, Snyder, Ulmer, Nagel, Spaeth, Schmidhauser, Tanenhaus, Danelski, and Schubert himself. It also served as a reference point for later inquiries.

From Pre-Behavioral Stirrings to Behavioral Self-Consciousness

When discussing the predecessors of The Judicial Mind and of judicial behavioralism in general, it is customary to cite Pritchett's The Roosevelt Court (1948) as the most significant work inspiring the development of the judicial behavior movement. Methodologically, however, The Roosevelt Court must share its significance with earlier quantitative judicial studies initiating research traditions which were important in the development of judicial behavior, and with Schubert's Quantitative Analysis of Judicial Behavior (1959). The latter surveyed and sytematized the presentation of a family of quantitative approaches to judicial behavior which shaped the development of the field, and which are still effectively used, despite the availability of sometimes more appropriate modern methods of which Schubert himself has been a leading proponent. The pubication of Quantitative Analysis of Judicial Behavior serves as an appropriate demarcation for the beginning of a period of self-conscious attention to judicial behavior by a significant number of creative scholars.

Bibliographers of judicial behavior have pointed out a number of studies published as early as 1919 which used data and at least rudimentary quantitative analysis to investigate the behavior of judges (see especially Vines, 1970; Schubert, 1964). The majority of these early studies (Everson, 1919; Gaudet, Harris, and St. John, 1933, 1934; Gaudet, 1938, 1946; and the studies cited in Green, 1961: 1-28) focused on variations in sentencing behavior, a topic which continues to be intensely studied today. All were based on data drawn from court records and subjected mostly to simple univariate and bivariate analyses, as was appropriate given the development of social research in their day. What was most striking about the Everson study was the very large sample on which it was based: more than 150,000 cases from New York City. Gaudet's studies were based on more conventionally sized samples, but exhibited considerably more sophistication in data analysis: the most extensive (Gaudet, 1938) presents carefully detailed tables displaying the variation in judicial sentencing by type of crime and over time. Nevertheless, the most elaborate statistic used is the percentage and there is little effort to engage in the systematic tabular analysis encapsulated in the elaboration model.

The sentencing studies cited above were the only attempts to analyze individual judicial decision making quantitatively prior to Pritchett's work which resulted in The Roosevelt Court. There were other studies which presaged later developments in judicial behavior concerned with judicial recruitment. These included

Mott, Albright, and Semerling (1933), who studied the personnel of 32 state supreme courts plus all federal judges sitting between 1900 and 1932 (N=685), and Ewing (1937), who discussed only Supreme Court justices serving through the Hoover administration. Both studies were descriptive, presenting simple tables displaying the frequency distributions for various characteristics of their samples of judges. But while Ewing presented his data as an adjunct to more traditional historical and normative analysis, Mott et al. demonstrated substantial sensitivity to methodological considerations. For example, they carefully described their sample and data source (Who's Who), discussed the data's validity, engaged in the construction of elaborate indexes to measure state supreme court prestige (based on a survey of law school professors), quality of the judicial personnel, and citations by other state supreme courts and the U.S. Supreme Court, correlated the personnel index with the others (to investigate its validity), reported confidence intervals for the correlation coefficients, analyzed variation in the personnel quality index by state, type of court, and method of selection, and engaged in rudimentary longtitudinal analysis of several judicial characteristics to determine "which way is the wind blowing?." Although the study did not present any multivariate analysis beyond two way analysis of means, a forgiveable flaw given its date of publication, it could otherwise serve as a model for contemporary analyses of similar topics.

There is little doubt that The Roosevelt Court is the most important precursor of behavioral efforts to study judicial decision making in the Supreme Court. Methodologically, Pritchett's use of cluster bloc analysis of majority and dissenting opinions was extremely influential. Hensley's (1981b: 55) data indicate that, as refined by Schubert (1959) and Sprague (1968), it continued to be used in quantitative judicial analyses into the 1980's. Pritchett's operationalization of bloc membership as indicative of shared liberal and conservative judicial values and his tabulations of individual differences in those values in terms of judicial voting percentages pro and con claimed political liberties and economic priveleges may be seen as the foundation of the psychometric model which has dominated analysis of Supreme Court justices' decision making.

Pritchett's analysis in The Roosevelt Court was brilliantly intuitive. His deep qualitative understanding of the Supreme Court allowed him to to produce this influential work while devoting no attention to problems of research design, being fairly casual about defining his sampling universe and unit of analysis (see Schubert, 1959: 164-66), and inexplicit concerning the methods used to order his bloc matrices. As a consequence, it would be difficult for less talented analysts to duplicate his effort with good results, and it is likely that even an equally talented analyst might come to slightly different conclusions in an effort to replicate Pritchett's analysis.

Pritchett also made no effort to use any quantitative

techniques beyond the calculation of percentages of agreement and favoring various policy claims. His work makes no reference to the efforts to make cluster bloc analysis more systematic and powerful by Rice (1928) and by his colleagues in other disciplines at the University of Chicago (Beyle, 1931; Thurstone, 1932). Possibly for these, as well as other reasons, it was not until Schubert specifically addressed the methodology of bloc analysis in judicial behavior that Pritchett's techniques came into common use.

Schubert's Quantitative Analysis of Judicial Behavior was the methodological clarion call for the judicial behavior movement. In it he illustrated the application of four analytical approaches which have been extremely important in the development of judicial behavior research. One of these ("The Analysis of Summary Judicial Power") uses the court as unit of analysis and is thus not of direct relevance here, even though it introduces analytical themes which are of importance in the judicial politics literature more generally. The other approaches are bloc analysis, game analysis, and scalogram analysis. All three remain important approaches to judicial behavior research even though Schubert abandoned simple bloc analysis in favor of more powerful dimensioning techniques in his own later research.

Given its central concerns, it is not surprising that Quantitative Analysis of Judicial Behavior devoted no conscious attention to research design or data sources in judicial behavior research. It is essentially a "how to" manual which uses significant data to illustrate the methods it advocates. It does, however, pay attention to operationalization and measurement within the domains it explores. For example, in discussing bloc and scalogram analysis, Schubert is quite specific about the data and the units of analysis to be used. He also makes clear that he sees scalogram analysis as a better means of operationalizing the judicial values which Pritchett had summarized by voting percentages, and introduces various indexes of agreement as means of more systematically assessing the unity and levels of conflict in blocs and courts.

The principal methodological problems of the techniques demonstrated in Quantitative Analysis of Judicial Behavior rested in the indeterminacy which still remained in Schubert's refinement of Pritchett's bloc analysis procedures and, to a lesser degree, in the scalogram construction procedures it outlines. Although Schubert tried to formalize bloc construction procedures as much as possible, he noted that bloc analysis must still proceed by trial and error, since he had been unable to come up with "an unfailing routine (1959: 83)." As an alternative to bloc analysis in the Pritchett tradition, he proposed McQuitty's Hierarchical Syndrome Analysis, a primitive form of hierarchical clustering analysis (1959: 167-72), and suggested a refinement to the procedure by establishing an agreement index which measured how much more or less a group clustered than chance expectations would have dictated. With

typical candor, Schubert reported the problems with this desirable measure and his inability to derive a method for putting confidence intervals around the index.

The problems with Schubert's method of scalogram analysis were arguably less serious, and and were publicized in a critique by Tanenhaus (1966), the scholar who had first suggested the applicability of cumulative scaling to judicial decision making. They revolved around the indeterminancy of the placement of judges on scalograms under a variety of case marginals conditions and the relative ease of constructing acceptable scalograms when the number of items greatly exceeded the number of persons responding to those items, the rule in judicial behavior research but the clear exception in the mass behavior research settings in which scalogram analysis had been developed.

A solution to the problems with the bloc analysis procedures presented in Quantitative Analysis of Judicial Behavior became available when Sprague (1968) developed invariant procedures for bloc analysis. The development of "objective" procedures for cumulative scaling in computerized statistical packages removed some of the problems of indeterminancy in Schubert's suggested methods. Furthermore, Schubert's own later work in cumulative scaling proceeded by different rules which were less restrictive (see Schubert, 1967b). Tanenhaus' suggestion that scales should not count multiple cases which present the same voting stimulus has occasionally been heeded, but most often has not.

Self-Conscious Judicial Behavior Research

Bloc analysis, cumulative scaling, and the game theory approach suggested in the fourth chapter of Quantitative Analysis of Judicial Behavior have each been associated with the development of a fecund research trend in judicial behavior. Articles reporting applications of each had begun to appear contemporaneously with the publication of Quantitative Analysis of Judicial Behavior, and appeared in great numbers as the methods it prescribed became more widely known. Bloc analyses was used to describe levels of conflict and consensus in multi-judge courts, which then were often explained by reference to other information. Scalogram analysis became the standard method for exploring or demonstrating the existence of policy attitude dimensions underlying and, at one level, explaining judicial voting behavior on such courts. Game theory inspired efforts to suggest and explore strategic group processes which might, at another level, explain judicial decision making, including decision making in circumstances other than those involved in the formal disposition of cases. Few if any of these studies made contributions to the development of methodology in judicial behavior research beyond those in Quantitative Analysis of Judicial Behavior. Instead, these studies represented the emergence of a self-conscious sub-discipline. But there were other developments which were methodologically significant in these years of consciousness-raising.

Among the most significant developments was the re-emergence of research on judicial attributes and recruitment, which had lain dormant since the work of Ewing and Mott et al . discussed above, and of explicit attempts to take the next analytical step implied by the study of judicial attributes: to link attributes to judicial decision making. Contributions to the data sources of judicial behavior research were made by Schmidhauser (1959), who systematized a large body of information concerning the justices of the U.S. Supreme Court, Nagel (1962), who coded biographical data secured from directories on all state and federal supreme court justices sitting in 1955, Vines (1963), who reported data on the Louisiana state judiciary, and Torgerson (1963), who analyzed the backgrounds of the Norwegian judiciary.

Torgerson's work was also significant in that it represented the first attempt published in English to provide a comparative dimension to the design of judicial behavior research. Also noteworthy in this regard was the work of Hayakawa (1962), which represented the first effort to apply cumulative scaling to the behavior of non-American judges.

The effort to link judicial attributes to judicial decisions was carried forward by Schmidhauser and Nagel by different means. The former (see Schmidhauser, 1964 for a useful summary) analyzed the relation between a variety of attributes and cumulative scales of "regionally divisive" cases in the nineteenth century and tendency to abandon stare decisis. The latter (see Nagel, 1969 for a good summary) developed specialized measurement methods to allow him to cope with the comparative aspect of his research design while examining the association between judicial attributes and judicial decision making in a wide variety of substantive case areas. These methods involved coding the voting of justices (the dependent variable) as "above" or "below" the average of their court's support for the claims of various classes of litigants to compensate for the fact that each group of judges heard a completely different set of cases.

From a statistical perspective, Schmidhauser's and Nagel's pioneering studies were unexceptional. All of Nagel's demonstrations of the relationships between attributes and voting behavior are based on two by two contingency tables accompanied by a statistical test for the significance of the difference in dependent variable proportions. Despite the problems posed by his smaller N, Schmidhauser does present some multivariate analysis of the relation between Supreme Court justice attributes and the dependent decision variables he analyzes. But since the multivariate analyses are contingency tables of up to 16 cells (2 x 2 x 2 x 2), they suffer greatly from small and unstable cell frequencies.

Nagel (1963) was responsible for another innovation in the methodology of judicial research during this period. In connection with his studies of the relation between judicial attributes and judicial decision making, he gathered data on the

"off-the-bench" attitudes of his sample of judges. He thus was able, for the portion of his sample who returned the survey, to operationalize significant attitudinal varibles independently of measures of the values represented in their decision making behaviors. These variables were then integrated in a limited fashion with attributes into analyses of decision making behavior. Since it is this last innovation which was of most significance to the development of judicial behavior research, it is unfortunate that Nagel's analysis using the attributes, off-the-bench attitudes, and decision behaviors was cursory and once again limited to simple cross-tabulations (but see Nagel, 1974).

Finally, Nagel's research bears mentioning because it represents the most self conscious effort before 1965 to develop and implement a complex research design to guide data gathering and analysis.

Another important methodological contribution during the period of self conscious judicial behavior studies came from the work of Danelski and Murphy with the archived private papers of Supreme Court justices. This alternative data source, a staple of such traditional judicial research as the judicial biography, was innovatively used by these two scholars to suggest, confirm, and infirm behavioral hypotheses concerning the procedures and substantive decision making of the U.S. Supreme Court. Danelski's study of the influence of the Chief Justice (1960) and of the appointment of Pierce Butler (1964) used concepts and methods borrowed from cognate disciplines (especially transactional analysis in the latter) to expand the arsenal of promising approaches to the study of judicial behavior. Murphy used the papers to provide data in support of the existence of certain judicial strategies inspired by game theory. Their use of these data no doubt sensitized their colleagues to the potential of such non-official information for expanding knowledge of judicial behavior.

Outside the development of bloc and scalogram analysis, the most significant statistical developments in this period were the introduction of factor analysis of judicial decision making by Schubert (1962), reinterpreting a previous analysis by the psychologists Thurstone and Degan (1951), and of multiple regression analysis by Bowen (1965) as a technique to allow the more systematic assessment of the relation of judicial backgrounds to judicial decisions. The former was critical to Schubert's development of the full psychometric model in The Judicial Mind; the latter provided what appeared at the time to be the definitive statement concerning the analytical problem it addressed.

IV. From The Judicial Mind to the Present: Judicial Behavior Methodology Matures

The Judicial Mind and the Psychometric Model

The measurement and statistical methodology of The Judicial Mind were so complex and, in full array, so innovative that they overshadowed the book's substantive conclusions. The latter were, after all, presaged in simpler forms in the article literature produced by Schubert (1962a, 1962c, 1963d, Ulmer (1960, 1962) and Spaeth (1963a, 1963b) prior to the publication of The Judicial Mind.

Taken singly, none of the methods used in The Judicial Mind was unusual: even factor analysis had already appeared in studies of judicial behavior (Thurstone and Degan, 1951). And the data analyzed were "standard" judicial votes in non-unanimous cases. But the magnitude of the quantitative analysis it reported and the combination of cumulative scaling with "case-wise" or "Q-type" factor analysis were unprecedented. In addition, its absolute fidelity to the psychometric model and its ultimate use of Guttman's circumplex and radex to depict the interrelations of the dimensions of liberalism were unique, as was its use of the cumulative scales to rotate the factor axes to verify that they were measuring dimensions of judicial liberalism towards civil liberties and economics policy questions, in most cases.

With one exception, the quantitative methods used in The Judicial Mind were open and replicable. The exception was the procedure for rotating the factor axes so as to maximize the correlation between the projections of the justices' positions in the factor space on the rotated axes and their ranks on the cumulative scales. The rotation was intended to demonstrate the fundamental identity between the content-less abstractions which are factors and the content-full cumulative scales constructed within pre-defined substantive universes. Since there existed at the time no known mathematical solution to the problem Schubert wanted to solve, he devised a set of iterative manual procedures to provide a satisfactory approximate solution. Some years later, his student Gow (1979) reported a mathematical solution and a FORTRAN program for this problem. In addition, although I have not attempted to verify it, it seems likely that current factor comparison and confirmatory factor analysis procedures (see Levine, 1977) are capable of providing satisfactory solutions.

Variations of The Judicial Mind's psychometric model of the U.S. Supreme Court have appeared in the years since its publication. Only a few have used the full methodology it presented; some have suggested alternative analytical approaches or techniques within the general confines of the model. The most substantial use of the model was made by Schubert himself in The Judicial Mind Revisited (1974). Substantively, The Judicial Mind Revisited was important for its demonstration that the dimensions of judicial ideology which characterized the Vinson and early Warren courts continued to characterize the latter through its temination, and for its revisions of some of the minor and more

speculative conclusions of The Judicial Mind. Methodologically, it was important because it reported an explicit effort by Schubert to compare the results of four different methods of dimensional analysis: principal components and oblique (oblimin) factor analysys, smallest space analysis (a variety of non-metric multidimensional scaling -- see Kruskal and Wish, 1978), and the centroid factor analysis used in The Judicial Mind. Although Schubert concludes that all three methods used in The Judicial Mind Revisited produce results superior to those of the centroid factor analysis used in The Judicial Mind, with smallest space analysis being preferred, it is fortunate for the conduct of analysis that his investigation also demonstrated the essential convergence of conclusions drawn from the results of any of the approaches, even the centroid analysis, allowing for differences in the time periods covered and data coding of the two studies.

Other applications inspired by the psychometric model which used some form of multidimensional analysis of judicial behavior were noteworthy not for the contributions they made to the development of quantitative methodology, but for the fact that they attempted to study non-American settings. These included Schubert's (see 1969b, 1969c, for examples) and Blackshield's (1972) studies of the Australian High Court , Danelski's (1969) analysis of the Japanese Supreme Court and, quite recently, Robertson's (1982) effort for the British Law Lords.

More Comparative Judicial Behavior Research

The studies just cited were among a number of comparative analyses in the years following the publication of The Judicial Mind. Studies appeared which reported social background analysis and/or cumulative scaling or other forms of analysis of judicial decision making for Japan (Dator, 1967; Kawashima, 1969), India (Gabbois, 1969a, 1969b, 1970, 1974), the Philippines (Samonte, 1969), Canada (Fouts, 1969; Peck, 1969), England (Morrisson, 1972), Germany (Kommers, 1969), and Switzerland (Morrisson, 1969). Aside from their use of data from non-American courts, however, there was nothing methodologically innovative about these studies -- indeed several of them contained minor to significant errors in the applications of the quantitative techniques they used, no doubt due to their authors' well-meaning use of methods with which they were not especially familiar. Their methodological significance lies in the fact that they began to provide the broad range of data and generalizations which is necessary for the development of a fully matured science of judicial behavior.

Some non-psychometric comparative analyses published since 1965 have been innovative in their use of quantitative methods. Among these are the causal models of the Australian High Court reported by Schubert (1969a), the "quasi-experimental" AID analysis and causal models of recruitment to the British higher judiciary by Tate (1975a, 1975b), the regression analysis of the impact of social background factors on the voting behavior of

Philippine Supreme Court justices by Tate (1972), and the sophisticated analyses of mail survey data from Japanese (Dator, 1969) and Austrian and Swiss judges (Wenner, Wenner, and Flango, 1978) and personal interview survey data from Dutch judges (van Dunné et al., 1982). To this category also might be added the reports by Schubert (1982, 1980, 1977) on his research using multiple data sources on South African and Swiss judges, although a heavy reliance on multidimensional analytical methods without adequate exploration of the data being subjected to such analyses mars their accessability and utility.

Enhancement of Foundations

The methodological foundations of judicial behavior research represented by bloc analysis, cumulative scaling, game theory, the analysis of judicial attributes, and judicial surveys, which were laid in the period of the development of a self conscious judicial behavior movement, were significantly expanded upon in the years following the publication of The Judicial Mind.

Bloc Analysis and Cumulative Scaling

The procedures for bloc analysis were rigorously systematized by Sprague (1968). For better or worse, this made it possible to construct replicable bloc analyses even from data whose content was not well understood. A similar capability became commonplace with the development of computerized clustering programs which could use appropriate measures of association (such as Yule's Q or Eta) to isolate clusters of "items" which would form cumulative scales after appropriate subsequent processing (see the CORREL and GSCALE programs in the OSIRIS III package, for example).

The new bloc analysis techinques were fairly quickly integrated into judicial research. The new approach to cumulative scaling has not been: analysts have still ordinarily identified the items to be scaled on substantive grounds (which requires a good prior understanding of the data) before submitting them to Guttman scaling programs which then spare the analyst the drudgery of scale construction. More significant than the above noted developments, however, has been the essential replacement of both bloc analysis and cumulative scaling methods by multidimensional scaling or factor analysis methods in the work of some scholars (Ducat and Flango, 1977; Robertson, 1982). After all, both techniques were designed to assess dimensionality in judges' decisional behavior. Multivariate forms of dimensional analysis allow such an assessment to be made without making prior, possibly incorrect, assumptions as to what that dimensionality is.

Game Theory

Research following the game theory approach benefitted from the new availability of unique archival data: the docket books and notes of Justices Harold Burton and Tom Clark, who recorded data on their and their colleagues' voting in conference on certiorari (Burton) and initially on the merits, information which previously was unavailable. The work of Ulmer (1978, 1972) and Brenner (1981, 1979) allowed game theory based work on certiorari, which data unavailability had previously restricted to the level of the court or to not directly verifiable inferences from published votes, to penetrate to the behavior of individual justices. In fact, however, it appeared that with greater data availability from private papers and from more imaginative coding of public records (see the work of Slotnick, 1978, 1979a, 1979b), hypotheses concerning internal Supreme Court procedures became less and less closely tied to formal game theory. Provine (1980) is a good example of a work which exploits both private papers and public data, although it does so in a methodologically pedestrian manner.

Judicial Attributes and Recruitment

Bowen's assessment of the ability of social background variables to explain variation in judicial behavior was pessimistic. His results plus a host of theoretical objections (most notably Grossman, 1966) to the backgrounds-decisions explanatory link explored by the work of Schmidhauser and Nagel reviewed above suggested that while backgrounds research for the purpose of describing judicial recruitment might be worthwhile, further efforts to explain judicial decision making in terms of background factors was not.

The critics of this research were unable to demonsrate the empirical superiority of any theoretically appropriate models over those of Bowen, however. Furthermore, preliminary regression based research by Ulmer (1973, 1970) and Tate (1972) continued to demonstrate moderate empirical explanatory potential for judicial attributes as predictors of judicial voting behavior in criminal cases and of dissent behavior. Recently, Tate's (1981) research has demonstrated that such attribute models can in fact be empirically very powerful.

Much of the explanatory power of Tate's attribute models is probably due to careful attention to operationalization and measurement of the independent attribute variables previous research had found to be linked to judicial decision making and to sensitive use of multiple regression analysis. His results suggest that similar improvements in the data analysis methodology of judicial behavior research on other topics would be well worth making. The work of Gibson (1978, 1981) is a further example of the potential payoffs of methodological care.

Expansion of Survey Research

The major methodological development concerning data generation procedures which occured in the wake of The Judicial Mind was the very substantial expansion of survey research on judges. Proceeding from a variety of theoretical postures, pioneering scholars conducted personal interviews with judges from several levels within a single state (Henderson and Sinclair, 1965), supreme court justices in four states (see Glick, 1970, 1971), federal district judges (see Cook, 1971; Carp and Wheeler, 1972), and federal Circuit Courts of Appeal judges (Howard, 1981). While only an enterprising journalist (Grey, 1967, 1968) was able to secure interviews with (8 of the 9) justices of the U.S. Supreme Court, political scientists studying foreign judiciaries were more successful. Kommers' (1969) and Morrison (1969) reported interviewing some members of the highest courts of West Germany and Switzerland, although it does not appear that their interviews were systematic. More significantly, systematic interview data was gathered by Schubert (1982, 1980, 1977) (supreme court judges in South Africa and Switzerland), van Dunné, van Koppen, and ten Kate (1981) (Dutch trial judges), and Paterson (1982) (British Law Lords).

Other scholars followed Nagel's lead and used mail surveys to gather data on judges. Examples which represent the analysis of mail survey data from a variety of types of American judges include the studies of Henderson and Sincliar (1965) (Texas judges), Cook (1982) (women state trial judges with a matched sample of males), Marquardt and Wheat (1982) (administrative law judges, using data from a supervisory agency survey), Wold (1974) (state supreme court justices), Hogarth (1971, 1972) (Canadian magistrates), and Ryan et al. (1981) (a large national sample of trial judges). Studies analyzing mail surveys from samples of non-American judges include Dator (1967) and Wenner, Wenner, and Flango (1978).

Surveys of judges had become so common by the late 1970's that it is hopeless to list them all. Most scholars who have recently used the survey method appear to have done so competently. Nevertheless, there has been little attention paid to the problems of survey research with judiciaries since the middle 1960's. Perhaps this is a sign of maturity in the use of the method, but it seems more likely that it is the result of the pressure of limited publication space: in this and other areas of judicial behavior research discussions of method are excised in favor of reports of substantive findings to save space.

Introduction of Content Analysis

Limited and not necessarily rigorous content analysis of documentary materials is necessary to the interpretation of blocs, scales, and factors in the psychometric model and lines of inquiry related to it. But prior to the mid-1960's, there had been no rigorous applications of content analysis in judicial behavior research. Danelski (1966, 1970) and Schubert (1965) changed that by systematically coding the content of judicial

speeches (Danelski) and opinions (Schubert) to operationalize independently values relevant to judicial decision making. Schubert's (1972) assessment of content analysis suggests that it is more trouble than it is worth, given its data yield. But the need for a method of determining independent measures of judicial values (and other concepts) is sufficiently great to suggest otherwise.

There are two barriers to the more extensive use of content analysis in the study of judicial behavior. The first is technological: despite the revolution in computer technology of the last decade, truly adequate computerized content analysis programs still do not exist (see Krippendorf, 1980). There are quite useful programs which could remove much of the drudgery of manual content analysis (see Madron, 1982 for a discussion and examples), but they are apparently not widely available to social scientists. Furthermore, use of even such programs as are available runs squarely into the second obstacle: the necessity of converting the documentary data to be analyzed into a machine readable form. In the future, the spread of electronic publishing will remove this problem: all published material will likely exist in machine readable form at some point, and it will be a relatively simple matter to manipulate such material into appropriate formats for computerized content analysis. For the present and possibly also for the future, depending upon the restrictions which are placed upon scholarly analysis of machine readable copyrighted materials, there will be costs, sometimes substantial ones, associated with the conversion of printed materials into an electronic form.

Statistical Developments

If the development of computerized approaches to content analysis has continued to lag, the development of powerful, flexible computerized data manipulation and statistical analysis techniques has not. This has meant that it has become easier and easier for scholars of judicial behavior to apply even the most mathematically complex methods to their data. Under these circumstances, it would be surprising if "statistical overkill" were not characteristic of at least some research. In fact, there have been examples of studies which have used complex multivariate procedures prematurely, i.e., without sufficient exploration of the data by the simpler techniques which reveal the data's essential characteristics to an analyst.

More common than statistical overkill, however, has been "statistical underkill," the failure to use appropriate multivariate methods when analytical purposes would have been much advanced by their use. For example, analysts continue to use bloc analysis when multidimensional analysis techniques would be more appropriate. Schubert's (1972: 118-19) judgement was that there was no justification even for systematizing bloc analysis procedures, since they should be totally abandoned in favor of more powerful methods. I would not go so far: bloc

analysis may still be useful for certain purposes, including pedagogical ones, and there is a strong likelihood that substantive conclusions drawn from bloc analysis will converge with those drawn from factor analysis or multidimensional scaling. But I would agree that serious contemporary research should rarely use bloc analysis.

Similarly, studies continue to be published which use only tabular and usually bivariate analysis with at most weak and sometimes not appropriate measures of association and significance, when regression or discriminant analysis (perhaps using dummy variables) would allow drawing much more reliable and valid conclusions from the data. Regression analyses which are published sometimes still unthinkingly adopt the linear additive model when it is possible that a non-linear function would be more appropriate or when variable interactions should be included in the models.

Identifying studies I consider guilty of statistical overkill or underkill is less useful than reviewing some which have provided examples of appropriate statistical innovation. Some of these have already been cited in the discussions of the psychometric model, comparative judicial behavior, and judicial attribute analysis above, and will not be reviewed here. Noteworthy others include Ulmer's applications of discriminant analysis to the explanation of the decision making behavior of Supreme Court justices as individuals (1969, 1974) and as a group (1970), and Gibson's (1978, 1981) use of factor analysis as a data reduction tool, multiple regression with interaction variables, and path analysis to investigate the effects of judges' role orientations and attitudes and of their sense of self esteem on their decisions.

Much statistical development has occured in a large series of sentencing studies. While these often focus relatively little on explaining the decisions of the judges passing sentence in comparison with the defendant being sentenced, the better studies do have a potential contribution to make to the explanation of judicial behavior. Spohn, Gruhl, and Welch (1981-82), for example, use multiple regression and path analysis well to explain variation in sentence severity and incarceration rates, even though the levels of explanation achieved are not especially high (as measured by R^2). A sound and interesting, although not ultimately very useful, attempt to use canonical correlation as a means of solving the problem of the essential duality of sentencing (incarceration vs. probation; sentence length, if incarcerated) is reported by McDavid and Stipak (1981-82). Finally, one might cite the "best case analysis" by Kritzer (1978) which manipulates data skillfully in an effort to assess the political correlates of the behavior of district judges.

Longtitudinal Studies

In the 1970's some analytical attention began to turn to

longtitudinal approaches to research on individual judicial behavior. While The Judicial Mind and The Judicial Mind Revisited had had longtitudinal dimensions, they had not attempted to develop models of change in the behavior of individual justices over time. To date, the only attempts to do this systematically have been reported by Ulmer (1973, 1979a, 1979b). More such research should be expected in the near future, however.

Longtitudinal analysis is important because it represents a new research design in studies of individual judicial behavior and introduces a new class of quantitative methods, those associated with econometric time series analysis. The work done by Ulmer so far points clearly toward the likely utility of "pooled cross sectional time series analysis," a technique which is now becoming available to analysts (in the SAS computer program package, for example), for sensitive modelling of the decision making of judges and justices across their careers.

V. Progress and Poverty: Judicial Behavior Research Now and in the Future

The Current State of Methodology

One is tempted to make a "good news, bad news" analysis of the current state of methodology in judicial behavior research. The good news is that judicial behavior research flourishes, oabounding with a greater variety of data sources, exhibiting more serious attention to operationalization and measurement, and using a greater variety of statistical methods and measures than ever before, even beginning to take seriously questions of research design, including the relevance of comparative work. The bad news is that much judicial behavior research is methodologically sub-optimal.

I use the term "sub-optimal" deliberately. It implies not that the research is "wrong" or "flawed" because of improper methodology, but that it fails to use methodologies which would mine the full worth from the hard-won data of the study. Frequently, this occurs because the analyst apparently follows by rote the approach taken by one or more of the pioneers of the field in a similar situation, perhaps not realizing that the work of pioneers is almost always rough due to conditions on the frontier. Less defensibly, it occurs because the analyst is apparently afraid or ignorant of multivariate methodology which requires the use of computer programs which produce mathematically imposing printouts or, vice versa, tries to use multivariate results prematurely to make points which can only be made clearly through the use of less powerful analytical techniques. And, understandably, it occurs because limitations on research resources prevent the analyst from securing all the data which theory suggests would be useful.

What can be done to remedy these problems? For the problem of limited resources, it might appear that there is no solution other than increased funding for social research. But there is one step which could help immensely and which would require only limited resources, and that is more systematic archiving of judicial data. Some strides have been made in this area since Nagel, Schmidhauser, and Schubert first archived their data sets with the ICPSR: the Consortium's archives now hold at least 18 studies which deal more or less directly with the judiciary and over 40 on the criminal justice system. But there remain dozens, perhaps hundreds, of data sets which are produced to support research and, once used, lie fallow in filing cabinet drawers or on forgotten computer tapes until they are finally lost. It may be that not all these data sets deserve to be archived, but it is almost certain that few of them are fully exploited by the scholars who initialy collect them and many of them could provide the supplemental data an analyst might need to fully exploit his or her own data by more completely operationalizing central hypotheses.

Let me use my own case as an example, both of the failure to archive useful data and of the utility of using data archived by others. One of the most interesting data collections for which I have been responsible is a set of social background and career data on the judges of the British higher judiciary from 1876-1972. These data were used in two analyses (Tate, 1975a, 1975b) and may still support additional research on my part on British judicial recruitment. The data were requested and have been archived by the Social Science Data Archive at the University of Essex, and have been distributed privately to a number of other scholars who have requested them. They have not been, so far, archived with ICPSR through no fault of that organization -- I have made no serious effort to get them archived there. Given the encouraging recent developments in the study of British judicial behavior (Paterson, 1982; Robertson, 1982), it is likely that these data would become of increasingly great utility, if archived.

My research (Tate, 1981) on the impact of judicial attributes on the civil liberties and economics voting behavior of U.S. Supreme Court justices is an example of the kinds of uses which can be made of multiple sets of archived data. This study used data originally collected by Schmidhauser and Schubert as well as additional data generated by my colleague Richard Johnston and Andrew Van Esso through the courtesy of John Ryan and the American Judicature Society. Had the Schmidhauser and Schubert data not been archived by ICPSR, the study would not have been possible, but it is equally important to note that the archived data were supplemented by data generated by my colleagues. This analysis of data from multiple sources, not simply secondary analysis of archived data from a single source, illustrates what is probably the most significant reason for archiving data on judicial behavior.

The contrast between the archiving of judicial and legislative data is instructive. Since its early days, the Consortium has routinely coded and archived Congressional roll call voting data, but not U.S. Supreme Court voting data, despite the significance of the latter in judicial behavior research. As a consequence, updating of that data set depends upon the initiative of enterprising scholars of judicial behavior. At best, this means that at least some scholarly effort is wasted through unnecessary duplication. At worst, it means that the timeliness of the Supreme Court voting data set suffers and that the discipline is subjected to idiosyncratic and non-comparable research.

I do not wish to overstress the significance of U.S. Supreme Court voting data; there are surely other worthy candidates for routine coding and archiving. But in the absence of such routinization, judicial behavior scholars would do well to at least increase communication concerning who is coding what official records and when.

What can be done to improve quantitative analysis in judicial behavior? The need now is not for every scholar to search out the newest and most esoteric method to apply to his or her data in order to demonstrate his or her superior methodological skills. Rather, the need is constantly to confront data analysis with theory, to ask insistently "Have the central theoretical concepts been measured as rigorously and imaginatively as possible?", "Have multiple or alternative operationalizations of these concepts been tried?", "Have the levels of measurement of the indicators been maximized?", "Have potentially significant interactions been considered and modelled?", "Have appropriate multivariate methods been used to test hypotheses which in fact require testing the impact of multiple variables (as most do)?", "Can alternative data which would allow more complete testing of my hypotheses be secured with reasonable effort?"

Achieving the kind of analyst self-consciousness described above will not be easy. Few scholars are immune to the urge to rush to print once data has been gathered and data analysis initially completed. What will encourage them to be more self-conscious? First, better training. Methodological naïvete invariably accompanies methodological ignorance. I am tempted to say that the problem of training judicial behavior scholars is more significant than for other kinds of political scientists. After all, most contemporary judicial behavioralists still have to live an alternate life as traditional public law teachers, even if they do not engage in public law research. Becoming and keeping current in public law may interfere with becoming methodologically competent. But in fact this problem, while serious, is certainly not unique. Analogous situations surely confront political theorists, who must teach the classics while they do research in formal theory, and comparative politics scholars, who find it necessary to try to maintain an area studies expertise while becoming competent in cross national

quantitative analysis. Furthermore, it has not deterred many of the pioneers of judicial behavior from steadily expanding their methdological sophistication and expertise.

The records of the pioneers surely suggests that formal methodological training, while helpful, is hardly essential. Willing scholars can become as methodologically sophisticated as their research demands, or else thay can collaborate with colleagues whose skills balance their own (see Ducat and Flango, 1977, for a good example). Training needs to be supplemented by the establishment of methodological standards by journals which publish judicial behavior research. These standards might try to operationalize the questions listed above. Editors might insist that authors, not just reviewers, answer the questions candidly, either in their articles or in statements submitted to document acccepted articles, but not to be published, given scarce journal space. Such statements might contain statistical and methodological details which could not be published, but which could be made available at cost of reproduction to interested scholars.

These comments should not give the impression that the sub-optimality of the methodology of judicial behavior research is unique to the field. To the contrary, I am sure that similar problems exist in all areas of political behavior research.

Methodology in Future Research

In closing, it maybe useful to speculate concerning possible trends in judicial behavior methodology in the near future. Todo so, I shall return to the initial classification of aspects of methodology made in section II above.

Research Design and Comparative Method

First, it seems clear that the broadening of the scope of judicial behavior research through comparative analysis of non-American judges will continue, indeed accelerate. The beginnings which were made with Schubert and Danelski's encouragement in 1969 may have been premature, since there has been only sporadic judicial behavior research on non-American judges since. But recently, the pace has picked up (Schubert,1982, 1980, 1977; Wenner, Wenner, and Flango, 1978; van Dunné, van Koppen, and ten Kate, 1981; Paterson, 1982; Robertson, 1982), and there is reason to expect it to continue to increase as more non-American scholars apply the assumptions and methods of judicial behavior research to their own judiciaries.

Second, judicial behavior studies will incresingly use truly comparative (i.e., "cross-state/circuit/district/city") research designs. This trend has been under way since the late 1960's, but, as it continues, it will reflect more conscious attention to designing comparative components into research.

Third, judicial behavior research will become more longitudinal. What Ulmer has done for some U.S. Supreme Court justices can and should be done for more, and for the justices of many other courts. As such studies are done, they will incorporate more contextual data from the judges environment in efforts to develop fuller and more satisfying explanations of judicial decision making.

Fourth, judicial behavior research will be characterized by more experimental and robust quasi-experimental research designs. Just as judicial behavior scholars found it possible to penetrate the "purple curtain" with the survey instrument, they will find occasions to employ more nearly experimental designs to assist them in explaining judicial decision making. In this connection, if the urgings of Schubert are taken seriously, judicial behavior research designs will include truly biological variables, as well as those such as sex (see Cook, 1982) and age which are biocultural, not just biological.

Data Sources and Generation Procedures

Judicial behavior scholars will continue to expand the data sources and generation procedures they use. One should expect to see still more imaginative use of official documents and archival materials from a greater variety of judicial settings, and more and more significant survey data. In addition, there should be greater use of systematic unobtrusive observation, participant observation, and even clinical observation in service of experimental and quasi-experimental research designs.

Continued developments in computer, especially microcomputer, technology will finally bring content analysis of documentary materials into its own, with potentially enormous benefit for judicial behavior and even for traditional doctrinal research on judicial decision making.

Operationalization and Measurement

The availability of new and new kinds of data from the procedures described in the preceeding paragraph will encourage better operationalization and measurement, as will the spread of knowledge about the measurement techniques being developed in a variety of social science disciplines. Improvements will also occur as the contributions of some of the measurement conscious scholars discussed above become more widely known.

Statistical Methods and Measures

The most significant progress in this area of methodology will occur through more effective use of known, standard statistical methods such as regression analysis, rather than

through the use of newer or less generally applicable methods. Nevertheless, one should expect to see greater use of any number of kinds of multidimensional analysis techniques, including many varieties of factor and multidimensional scaling analysis; of various kinds of "maximum likelihood" statistics, both those analogous to regression and to factor analysis; of time series and related longtitudinal analysis methods, including ARIMA models and pooled cross sectional time series analysis; and of categorical data analysis techniques such as log linear modelling.

As in the past, many of these will be used for the novelty or "bragging rights" associated with being one of the first users. Furthermore, there is a strong likelihood that initial uses will be more confusing than enlightening. With experience, however, scholars will discover appropriate uses for these methods and their readers will come to understand when they do and do not have utility.

The Complexity of Judicial Behavior Research

Gibson (infra) has noted the apparent fragmentation which characterizes contemporary judicial research. Certainly developments in methodology have contributed to this as proponents of one methodological approach have insistently done things their way regardless of the work of others or the availability of alternate approaches. Nevertheless, such increasing complexity and fragmentation have ordinarily been associated with the progress of scientific disciplines. From this perspective, judicial behavior has come far toward fulfilling the hopes of its founders.

REFERENCES

Beyle, Herman C. (1931). Identification and Analysis of Attribute Cluster Blocs. Chicago: University of Chicago Press.

Blackshield, A. R. (1972). "Quantitative Analysis: The High Court of Australia, 1964-1969," Lawasia 3 (April), pp. 1-66.

Bowen, Don R. (1965). The Explanation of Judicial Voting Behavior from Sociological Characteristics of Judges. Unpublished Ph.D. dissertation, Yale University.

Brenner, Saul (1981). "Strategic Choice and Opinion Assignment on the U.S. Supreme Court: A Reexamination." Paper presented to the Annual Meeting of the Southern Political Science Association, Memphis (November 5-7).

Brenner, Saul (1979). "The New Certiorari Game," Journal of Politics 41: 649-655.

Campbell, Donald T. and Julian E. Stanley (1963). Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally.

Carp, Robert and Russell Wheeler (1972). "Sink or Swim: The Socialization of a Federal District Judge," Journal of Public Law 21: 359-93.

Cook, Beverly B. (1982). "The Personality and Procreative Behavior of TrialJudges: A Biocultural Perspective," International Political Science Review 3: 51-70.

Cook, Beverly B. (1971) "The Socialization of New Federal Judges: Impact on District Court Business," Washington University Law Review 1971: 253-79.

Danelski, David J. (1970). "Legislative and Judicial Decision-Making: The Case of Harold H. Burton." In S. Sidney Ulmer (ed.), Political Decision-Making. New York: Van Nostrand Reinhold Company, pp. 121-46.

Danelski, David J. (1969). "The Supreme Court of Japan: An Exploratory Study." In Schubert and Danelski (1969), pp. 121-56.

Danelski, David J. (1966). "Values as Variables in the Judicial Process," Vanderbilt Law Review 19: 721-40.

Danelski, David J. (1964). A Supreme Court Justice is Appointed. New York: Random House.

Danelski, David J. (1960). "The Influence of the Chief Justice on the Decisional Process." Paper presented to the Annual

Meeting of the American Political Science Association. Reprinted in Walter F. Murphy and C. Herman Pritchett, Courts,Judges and Politics: An Introduction to the Judicial Process. New York: Random House, 1961, pp. 497-508.

Dator, James Allen (1969). "Measuring Attitudes across Cultures: A Factor Analysis of the Replies of Japanese Judges to Eysenck's Inventory of Conservative Progressive Ideology." In Schubert and Danelski (1969), pp. 71-102.

Dator, James Allen (1967). "The Life History and Attitudes of Japanese High Court Judges," Western Political Quarterly 20 (June), pp. 408-39.

Ducat, Craig R. and Victor E. Flango (1977). "Toward an Integration of Public Law and Judicial Behavior," Journal of Politics 39 (February), pp. 41-72.

Everson, George (1919). "The Human Element in Justice," Journal of the American Institute of Criminal Law and Criminology, 10 (May), 90-94.

Ewing, Cortez A. M. (1937). The Judges of the Supreme Court, 1798-1937. Minneapolis: University of Minnesota Press.

Fouts, Donald R. (1969). "Policy-Making in the Supreme Court of Canada." In Schubert and Danelski (1969), pp. 257-92.

Gadbois, George H., Jr. (1974). "Supreme Court Decision Making," Banares Law Journal 10: 1-49.

Gadbois, George H., Jr. (1970). "Indian Judicial Behavior," Economic and Political Weekly 5: 3, 4, 5 (January), p. 1.

Gadbois, George H., Jr. (1969a). "Indian Supreme Court Judges: A Portrait," Law and Society Review 3: 317-36.

Gadbois, George H., Jr. (1969b). "Selection, Background Characteristics, and Voting Behavior of Indian Supreme Court Judges." In Schubert and Danelski (1969), p. 221-56.

Gaudet, Fredrick. (1946). "Differences between Judges in the Granting of Sentences of Probation," Temple Law Quarterly 19: 471-84.

Gaudet, Fredrick. (1938). "Individual Differences in the Sentencing Tendencies of Judges," Archives of Psychology 32, # 30.

Gaudet, Fredrick, George S. Harris, and Charles W. St. John (1934). "IndividualDifferences in Penitentiary Sentences Given by Different Judges," Journal of Applied Psychology 18: 675-80.

Gaudet, Fredrick, George S. Harris, and Charles W. St. John (1933). "Individual Differences in the Sentencing Tendencies

of Judges," Journal of Criminal Law, Crimonology, and Police Science 23: 811-18.

Gibson, James L. (1981a) "Personality and Elite Political Behavior: The Influence of Self Esteem on Judicial Decision Making," Journal of Politics 43 (February), 104-25.

Gibson, James L. (1978a) "Judges Role Orientations, Attitudes, and Decisions: An Interactive Model," American Political Science Review, 72: 911-??.

Glick, Henry R. (1971). Supreme Courts in State Politics: An Investigation of the Judicial Role. New York: Basic Books.

Glick, Henry R. (1970). "Interviewing Judges: Access and Interview Setting," Research in Social Science 13 (February), pp. 1-8.

Gow, David John (1979). "Scale Fitting in the Psychometric Model of Judicial Decision Making," American Political Science Review, 73: 430-41.

Green, Edward (1961). Judicial Attitudes in Sentencing. New York: St. Martin's Press.

Grey, David L. (1968). The Supreme Court and the News Media. Evanston: Northwestern University Press.

Grey, David L. (1967). "Interviewing at the Court," Public Opinion Quarterly 31: 285-89.

Grossman, Joel B. and Joseph Tanenhaus (eds.) (1969). Frontiers of Judicial Behavior. New York: John Wiley & Sons.

Grossman, Joel B. (1966). "Social Background and Judicial Decision-Making," Harvard Law Review 79: 1551-64.

Hayakawa, Takeo (1962). "Legal Science and Judicial Behavior, with Particular Reference to Civil Liberties in the Japanese Supreme Court," Kobe University Law Review # 2: 1-27, as reprinted in Schubert (1964), pp. 325-34.

Henderson, Bancroft and T. C. Sinclair (1965). The Selection of Judges in Texas: An Exploratory Study. Houston: Public Affairs Research Center, university of Houston.

Hensley, Thomas R. (1981a). "Studying the Studies: Political Science Research on Judicial Politics, 1961-1980." Paper presented to the Annual Meeting of the Midwest Political Science Association, Cincinnati, (April 15-18).

Hensley, Thomas R. (1981b). "Supreme Court Research in the Sixties and Seventies: A Survey of the Journals." Paper presented to the Annual Meeting of the Southwestern Political Science Association, Dallas (March 25-28).

Hogarth, John (1972). Technical Appendices to Sentencing as a Human Process. Toronto: Center of Criminology, University of Toronto.

Hogarth, John (1971). Sentencing as a Human Process. Toronto: University of Toronto Press.

Howard, J. Woodford, Jr. (1981). Courts of Appeals in the Federal Judicial System: A Study of the Second, Fifth, and District of Columbia Circuits. Princeton: Princeton University Press.

Kawashima, Takeyoshi (1969). "Individualism in Decision-Making in the Supreme Court of Japan." In Schubert and Danelski (1969), pp. 103-21.

Kommers, Donald P. (1969). "The Federal Constitutional Court in the West German Political System." In Grossman and Tanenhaus (1969), 73-132.

Krippendorf, Klaus (1980). Content Analysis: An Introduction to its Methodology. Beverly Hills: Sage Publications.

Kritzer, Herbert M. (1978). "Political Correlates of the Behavior of Federal District Judges: A 'Best Case' Analysis," Journal of Politics, 40: 25-58.

Leege, David C. and Wayne L. Francis (1974). Political Research: Design, Measurement, and Analysis. New York: Basic Books.

Lijphart, Arend (1971). "Comparative Politics and the Comparative Method," American Political Science Review 65 (September), pp. 682-93.

Levine, Mark S. (1977). Canonical Analysis and Factor Comparison. Beverly Hills: Sage Quantitative Applications in the Social Sciences # 6.

Madron, Thomas Wm. (1982). "Computer Applications in the Humanities." Paper presented to the Wesley Studies Conference, Oxford University, July 30.

Marquardt, Ronald G. and Edward M. Wheat (1982). "Case Processing by Administrative Agencies: Administrative Law Judge Perceptions vs. Reality." Paper presented to the Annual Meeting of the Western Political Science Association, San Diego (March 26).

McDavid, James C. and Brian Stipak (1981-82). "Simultaneous Scaling of Offense Seriousness and Sentence Severity Through Canonical Correlation Analysis," Law and Society Review 16: 147-62.

Morrison, Fred L. (1973). Courts and the Judicial Process in England. Beverly Hills: Sage Publications.

Morrison, Fred L. (1969). "The Swiss Federal Court: Judicial Decision-Making and Recruitment." In Grossman and Tanenhaus (1969), pp. 132-62.

Mott, Rodney L., Spencer D. Allbright and Helen R. Semmerling (1933). "Judicial Personnel," The Annals of the American Academy of Political and Social Science 167: 143-55, as reprinted in Schubert (1964), pp. 195-205.

Nagel, Stuart S. (1974). "Multiple Correlation of Judicial Backgrounds and Decisions," Florida State University Law Review 2 (Spring), 258-80.

Nagel, Stuart S. (1969). The Legal Process from a Behavioral Perspective. Homewood: The Dorsey Press.

Nagel, Stuart S. (1963). "Off-the-Bench Judicial Attitudes." In Schubert 1963e), pp. 29-54.

Nagel, Stuart S. (1962). "Testing Empirical Generalizations in Legal Research," Journal of Legal Education 15: 365-81.

Paterson, Alan (1982). The Law Lords. London: Macmillan Press.

Peck, Sidney R. (1969). "A Scalogram Analysis of the Supreme Court of Canada, 1958-1967." In Schubert and Danelski (1969), 293-334.

Pritchett, C. Herman (1948). The Roosevelt Court: A Study in Judicial Politics and Values, 1937-1947. New York: Macmillan.

Provine, Doris Marie (1980). Case Selection in the United States Supreme Court. Chicago: University of Chicago Press.

Rice, Stuart A. (1928). Quantitative Methods in Politics. New York: Knopf.

Robertson, David (1982). "Judicial Ideology in the House of Lords: A Jurimetric Analysis," British Journal of Political Science 12: 1-25.

Rosenberg, Morris (1968). The Logic of Survey Analysis. New York: Basic Books.

Ryan,John Paul, et al. (1981). The American Trial Judge. New York: Basic Books.

Samonte, Abelardo G. (1969). "The Philippine Supreme Court: A Study of Judicial Background Characteristics, Attitudes, and Decision-Making." In Schubert and Danelski (1969), pp. 157-96.

Schmidhauser, John R. (1964). Constitutional Law in the PoliticalProcess. Chicago: Rand McNally.

Schmidhauser, John R. (1959). "The Justices of the Supreme Court: A Collective Portrait," Midwest Journal of Political Science 3: 1-57.

Schubert, Glendon A. (1982). "Subcultures and Judicial Background: A Cross-Cultural Analysis." Paper presented to the Annual Meeting of the Midwest Political Science Association, Milwaukee.

Schubert, Glendon A. (1980). "Subcultural Effects on Judicial Behavior: A Comparative Analysis," Journal of Politics 42: 951-92.

Schubert, Glendon A. (1977). "Political Culture and Judicial Ideology: Some Cross-Cultural and Subcultural Comparisons," Comparative Political Studies 9, (January), 363-408.

Schubert, Glendon A. (1974). The Judicial Mind Revisited: Psychometric Analysis of Supreme Court Ideology. New York: Oxford University Press.

Schubert, Glendon A. (1972). "Judicial Process and Behavior, 1963-1971." In James A. Robinson (ed.), Political Science Annual: An International Review 3: 73-280.

Schubert, Glendon A. (1969a). "Two Causal Models of Decision-Making by the High Court of Australia." In Schubert and Danelski (1969) pp. 335-66.

Schubert, Glendon A. (1969b). "The Dimensions of Decisional Response: Opinion and Voting Behavior of the Australian High Court." In Grossman and Tanenhaus (eds.), (1969) pp. 163-95.

Schubert, Glendon A. (1969c). "Judicial Attitudes and Policy-Making in the Dixon Court," Osgoode Hall Law Journal 7 (October).

Schubert, Glendon A. (1968b). "Political Ideology on the High Court," Politics 3: 25-34.

Schubert, Glendon A. (1968a). "Opinion Agreement among High Court Justices in Australia," The Australian and New Zealand Journal of Sociology" 4: 2-17.

Schubert, Glendon A. (1966b). "The High Court and the Supreme Court: Two Styles of Judicial Hierocracy." Paper presented to the Annual Meeting of the American Political Science Association, New York.

Schubert, Glendon A. (1966-1968). "Judicial Behavior." In David A. Sills (ed.), International Encyclopedia of the Social Sciences, Revised Edition. New York: Macmillan.

Schubert, Glendon A. (1967). "Ideologies and Attitudes, Academic and Judicial," Journal of Politics 29 (February), 3-40.

Schubert, Glendon A. (1965a). "Jackson's Judicial Philosophy: An Exploration in Value Analysis," American Political Science Review 59 (December), 904-63.

Schubert, Glendon A. (1965b). The Judicial Mind: Attitudes and Ideologies of Supreme Court Justices, 1946-1963. Evanston, Ill.: Northwestern University Press.

Schubert, Glendon A. (1965c). Judicial Policy-Making: The Political Role of Courts. Glenview, Ill.: Scott, Foresman, Inc.

Schubert, Glendon A. (1964a). Judicial Behavior: A Reader in Theory and Research. Chicago: Rand McNally and Company.

Schubert, Glendon A. (1963a). "Behavioral Research in Public Law," American Political Science Review 57: 433-45.

Schubert, Glendon A. (1963b). "Civilian Control and Stare Decisis in the Warren Court." In Schubert (ed.), Judicial Decision-Making. New York: The Free Press of Glencoe, pp. 55-78.

Schubert, Glendon A. (1963c). "From Public Law to Judicial Behavior." In Schubert (ed.), Judicial Decision-Making. New York: The Free Press of Glencoe, pp. 55-78.

Schubert, Glendon A. (1963d) "Judicial Attitudes and Voting Behavior: The 1961 Term of the United States Supreme Court," Law and Contemporary Problems 28 (Winter), 100-42, as reprinted in Schubert, Judicial Behavior, pp. 548-79 with an Appendix "A Report and Analysis of the 1962 Term Prediction," pp. 579-87.

Schubert, Glendon A. (ed.) (1963e). Judicial Decision-Making. New York: The Free Press of Glencoe, pp. 55-78.

Schubert, Glendon A. (1962a). "The 1960-61 Term of the Supreme Court: A Psychometric Analysis," American Political Science Review 56: 90-101.

Schubert, Glendon A. (1962b). "Policy Without Law: An Extension of the Certiorari Game," Stanford Law Review, 14: 284-327.

Schubert, Glendon A. (1962c). "A Solution to the Indeterminate Factorial Resolution of Thurstone and Degan's Study of the Supreme Court," Behavioral Science 7: 448-58, as reprinted in Schubert, Judicial Behavior, pp. 341-51.

Schubert, Glendon A. (1959). Quantitative Analysis of Judicial Behavior. Glencoe, Ill.: The Free Press and Bureau of Social and Political Research, Michigan State University.

Schubert, Glendon A. and David J. Danelski (eds.) (1969). Comparative Judicial Behavior: Cross-Cultural Studies in

Political Decision-Making in the East and West. New York: Oxford University Press.

Slotnick, Elliot E. (1979a). "Judicial Career Patterns and Majority Opinion Assignments in the Supreme Court," Journal of Politics 41 (May), pp. 640-48.

Slotnick, Elliot E. (1979b). "Who Speaks for the Court: Majority Opinion Assignments from Taft to Burger," American Journal of Political Science 23 (February), pp. 60-77.

Slotnick, Elliot E. (1978). "The Chief Justice and Self-Assignment of Majority Opinions: A Research Note, Western Political Quarterly 30 (June), pp. 219-25.

Spaeth, Harold J. (1963a). "An Analysis of Judicial Attitudes in the Labor Relations Decisions of the Warren Court," Journal of Politics 25: 290-311.

Spaeth, Harold J. (1963b). "Warren Court Attitudes Toward Business." In Schubert (1963e), pp. 79-108.

Spohn, Cassia, John Gruhl and Susan Welch (1981-82). "The Effect of Race on Sentencing: A Re-Examination of an Unsettled Question," Law and Society Review 16: 71-88.

Sprague, John D. (1968). Voting Patterns on the United States Supreme Court: Cases in Federalism, 1889-1959. Indianopolis: Bobbs-Merrill.

Tanenhaus, Joseph (1966). "The Cumulative Scaling of Judicial Decisions," Harvard Law Review 79: 1583-94.

Tate, C. Neal (1981). "Personal Attribute Models of the Voting Behavior of U.S. Supreme Court Justices: Liberalism in Civil Liberties and Economic Decisions, 1946-1978," American Political Science Review 75 (June), 355-67.

Tate, C. Neal (1975a). "Paths to the Bench in Britain: A Quasi-Experimental Study of the Recruitment of a Judicial Elite," Western Political Quarterly 28 (March), 108-29.

Tate, C. Neal (1975b). "Recruitment to the British Higher Judiciary, 1876-1972: Causal Models." Paper presented to the Annual Meeting of the American Political Science Association, San Francisco.

Tate, C. Neal (1972). "Social Background and Voting Behavior in the Philippine Supreme Court," Lawasia 3 (August-December), 317-38.

Thurstone, Louis (1932). "The Isolation of Blocs in a Legislative Body by the Vopting Reccords of its Members," Journal of Social Psychology 3 (November, 425-33.

Thurstone, Louis and J. W. Degan (1951). "A Factorial Study of the Supreme Court," Proceedings of the National Academy of Science 37: 628-35 as reprinted in Schubert, Judicial Behavior, pp. 335-40.

Torgerson, Ulf. (1963). "The Role of the Supreme Court in the Norwegian Political System." In Schubert (1963e), 201-20.

Ulmer, S. Sidney (1979a). "Parabolic Support of Civil Liberties Claims: The Case of William O. Douglas," Journal of Politics 41: 634-39.

Ulmer, S. Sidney (1979b). "Paremeters of Change in the Behavior od Supreme Court Justices." Paper presented to the Annual Meeting of the Southwestern Political Science Association, Fort Worth (March 28-31).

Ulmer, S. Sidney (1978). "Selecting Cases for Supreme Court Review: An Underdog Model," American Political Science Review 72: 902-10.

Ulmer, S. Sidney (1974). "Dimensionality and Change in Judicial Behavior" In James Herndon and Joseph Bernd (eds.) Mathematical Applications in Political Science--VII. Charlottesville: University Press of Virginia, 40-67.

Ulmer, S. Sidney (1973a). "The Longtitudinal Behavior of Hugo Lafayette Black: Parrabolic Support for Civil Liberties," Florida State University Law Review 1: 131-53.

Ulmer, S. Sidney (1973b). "Social Background as an Indicator to the Votes of Supreme Court Justices in Criminal Cases," Midwest Journal of Political Science 17: 622-30.

Ulmer, S. Sidney (1972). "The Decision to Grant Certiorari as an Indicator to Decision 'On the Merits,'" Polity 4: 429-47.

Ulmer, S. Sidney (1970). "Dissent Behavior and the Social Background of Supreme Court Justices," Journal of Politics 32 (August), pp. 580-98.

Ulmer, S. Sidney (1969). "The Discriminant Function and a Theoretical Context for its Use in Estimating the Votes of Judges." In Grossman and Tanenhaus (eds), Frontiers of Judicial Research. New York: John Wiley and Sons, Inc.

Ulmer, S. Sidney (1962) "Supreme Court Behavior in Racial Exclusion Cases: 1935-1960," American Political Science Review 56: 325-30.

Ulmer, S. Sidney (1960) "Supreme Court Behavior and Civil Rights," Western Political Quarterly 13: 288-311.

van Dunné, Jan M., Peter J. van Koppen, and Jan ten Kate (1981). "Personality Influences on Judicial Decision Making in the

Netherlands." Paper presented to the Meeting of the Research Committee for Comparative Judicial Studies of the International Political Science Association, Oxford, England.

Vines, Kenneth N. (1970). "Judicial Behavior Research." In Michael Haas and Henry S. Kariel (eds), Approaches to the Study of Political Science. Scranton: Chandler Publishing Company, pp. 125-43.

Vines, Kenneth N. (1969). "The Judicial Role in the American States: An Exploration." In Grossman and Tanenhaus (eds)., Frontiers of Judicial Research, pp. 461-85.

Vines, Kenneth N. (1963). "The Selection of Judges in Louisiana." In Vinces and Herbert Jacob, Studies in JudicialPolitics. New Orleans: Tulane Studies in Political Sciecne 8.

Wenner, Manfred, Lettie M. Wenner and V. Eugene Flango (1978). "Austrian and Swiss Judges: A Comparative Study," Comparative Politics 10 (July), pp. 499-518.

Wold, John (1974). "Political Orientations, Social Backgrounds, and Role Perceptions of State Supreme Court Justices," Western Political Quarterly 27 (June), pp. 239-48.